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## BRIEFER ARTICLES

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### A NEW HYBRID COLUMBINE

The year before last my wife crossed *Aquilegia chrysantha* Gray (a garden strain) with *A. desertorum* (Jones) Ckll. from Santa Fé Canyon, New Mexico. The hybrids have bloomed this year, and are found to present some interesting characters. In order to make these clear, it is first necessary to indicate the principal diagnostic features of *A. desertorum*.

*Aquilegia desertorum* (Jones) Ckll.—WOOTON and STANDLEY, in their *Flora of New Mexico*, do not distinguish *A. desertorum* from *A. elegantula* Greene. Direct comparison of living plants has not yet been possible, but *A. elegantula* is properly a forest-loving species of higher altitudes, essentially a mesophytic plant. *A. desertorum*, as its name indicates, is xerophytic, living on rocky slopes in the transition zone, and is remarkable for its enormous root and long life. The early leaves have a strong red suffusion, and the plant comes into flower long before the other Rocky Mountain species, so that only a few belated blossoms can be obtained for crossing with *A. chrysantha* or *A. caerulea*. As I write (June 1), *A. desertorum* has still one or two flowers, while the first flower of *A. chrysantha* is opening. *A. caerulea* is in full flower, however, coming between the periods of *A. desertorum* and *A. chrysantha*. The following description is from a characteristic flower of *A. desertorum*.

Sepals short, about 9 mm. long, 3.5 mm. broad, lanceolate, reddish or partly pale yellowish, with purplish tips; upright, and extending about 2 mm. beyond ends of petals. Petals 25 mm. long (to end of spur), spurs only moderately divergent; about apical 5 mm. of petals light yellow, the rest bright scarlet; this scarlet appearance is wholly due to an anthocyan pigment, which looks pink by transmitted light, and readily passes into solution in weak nitric acid; with liquor potassae it first turns lilac, and then gives the usual green reaction; the lilac can be observed under the microscope fringing the edge of the alkaline fluid. Stamens exserted 7 mm. beyond ends of petals; anthers yellow. Pistils exserted 4 mm. beyond stamens.

*Aquilegia desertorum* × *chrysantha*, new hybrid.—The early leaves showed more or less distinct reddish or purple color, which is wholly

wanting in *A. chrysantha*. The time of flowering is intermediate between that of the two parents; the plants were in full flower by the second half of May. The flowers are much broader than those of *A. desertorum*, with relatively short spurs (that is, in relation to the breadth), which is not a character of either parent. The sepals are strongly divergent, a character of *A. chrysantha*. The following description is from a characteristic flower.

Flower nodding. Sepals about 19 mm. long and 8 mm. broad, pink, with a faintly purplish shade, or the apex distinctly purplish. Petals 30 mm. long (to end of spur), 8 mm. wide near apex, broadly truncate and sub-marginate apically; apical 10 mm. cream color, spur rose-pink; spurs much broader basally than in *A. desertorum*.

Two plants, representing each parent as seed-producer, are essentially alike; but a third, recorded as from *A. chrysantha* pollen on *A. desertorum*, is distinctly different, having longer spurs (petals 34 mm., the truncate apex 7 mm. wide), and longer, narrower sepals (21 mm. long, 6 mm. wide), while the color of the spurs is more purplish, owing to less acidity. It is just possible that this represents *A. caerulea* pollen on *A. desertorum*, due to some unobserved insect, although the heads were covered and the records do not indicate any such cross as having purposely been made.

Thus it appears that the color of the flowers and the time of flowering of the  $F_1$  hybrid are clearly intermediate; but the form of the flowers departs from both parents in the direction of the *A. vulgaris* group. The form of the flower, however, may be given a simple Mendelian interpretation, if we say that the dominant characters are the spur-length of *desertorum* and the flower-width of *chrysantha*.

We also have a row of *A. chrysantha*  $\times$  *A. caerulea* hybrids, but this form has long been known in gardens. It blooms with *A. caerulea*, and has the flowers paler than *A. caerulea*, with the white replaced by light yellow, which fades to white as the flowers grow old. On the whole, it is nearly *A. caerulea*, with the yellow of *A. chrysantha* superimposed upon it.—T. D. A. COCKERELL, *Boulder, Colorado*.

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## AN ALTERNARIA ON SONCHUS

(WITH ONE FIGURE)

During recent studies on *Alternaria* and *Macrosporium* much material was sent to me by various botanists. Among this was an *Alternaria* collected by Dr. DAVIS near Madison, Wisconsin, which